

SEQUENCE LISTING



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<120> GLIAL MITOGENIC FACTORS, THEIR
PREPARATION AND USE

<130> 04585/00200Q

<140> 08/736,019

<141> 1996-10-22

<150> 08/471,833

<151> 1995-06-05

<150> 08/036,555

<151> 1993-03-24

<150> 07/965,173

<151> 1992-10-23

<150> 07/940,389

<151> 1992-09-03

<150> 07/907,138

<151> 1992-06-30

<150> 07/863,703

<151> 1992-04-03

<160> 189

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<210> 1

<211> 8

<212> PRT

<213> Bos taurus

<400> 1

Phe Lys Gly Asp Ala His Thr Glu

1

5

<210> 2

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SERVICE CENTER

<211> 13
<212> PRT
<213> Bos taurus

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<222> (1)...(12)
<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 12 is unknown.

<400> 2
Xaa Ala Ser Leu Ala Asp Glu Tyr Glu Tyr Met Xaa Lys
1 5 10

<210> 3
<211> 12
<212> PRT
<213> Bos taurus

<220>
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<222> (1)...(10)
<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 10 is unknown

<400> 3
Xaa Thr Glu Thr Ser Ser Ser Gly Leu Xaa Leu Lys
1 5 10

<210> 4
<211> 9
<212> PRT
<213> Bos taurus

<220>
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<223> Xaa in position 1 is Lysine or Arginine.

<400> 4
Xaa Lys Leu Gly Glu Met Trp Ala Glu
1 5

<210> 5
<211> 7
<212> PRT
<213> Bos taurus

<220>
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<222> (1)...(1)

<223> Xaa in position 1 is Lysine or Arginine.

<400> 5

Xaa Leu Gly Glu Lys Arg Ala
1 5

<210> 6

<211> 16

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (1)...(1)

<223> Xaa in position 1 is Lysine or Arginine.

<400> 6

Xaa Ile Lys Ser Glu His Ala Gly Leu Ser Ile Gly Asp Thr Ala Lys
1 5 10 15

<210> 7

<211> 13

<212> PRT

<213> Bos taurus

<220>

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<222> (1)...(1)

<223> Xaa in position 1 is Lysine or Arginine.

<400> 7

Xaa Ala Ser Leu Ala Asp Glu Tyr Glu Tyr Met Arg Lys
1 5 10

<210> 8

<211> 16

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (1)...(1)

<223> Xaa in position 1 is Lysine or Arginine.

<400> 8

Xaa Ile Lys Gly Glu His Pro Gly Leu Ser Ile Gly Asp Val Ala Lys
1 5 10 15

<210> 9

<211> 13

<212> PRT

<213> Bos taurus

<220>

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<222> (1)...(12)

<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 12 is unknown.

<400> 9

Xaa	Met	Ser	Glu	Tyr	Ala	Phe	Phe	Val	Gln	Thr	Xaa	Arg
1				5					10			

<210> 10

<211> 14

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (1)...(1)

<223> Xaa in position 1 is Lysine or Arginine.

<400> 10

Xaa	Ser	Glu	His	Pro	Gly	Leu	Ser	Ile	Gly	Asp	Thr	Ala	Lys
1				5					10				

<210> 11

<211> 10

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (1)...(8)

<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 8 is unknown.

<400> 11

Xaa	Ala	Gly	Tyr	Phe	Ala	Glu	Xaa	Ala	Arg
1				5				10	

<210> 12

<211> 9

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (1)...(7)

<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 7 is unknown.

<400> 12
 Xaa Lys Leu Glu Phe Leu Xaa Ala Lys
 1 5
 <210> 13
 <211> 11
 <212> PRT
 <213> Bos taurus
 <220>
 <221> UNSURE
 <222> (1)...(1)
 <223> Xaa in position 1 is Lysine or Arginine

<400> 13
 Xaa Thr Thr Glu Met Ala Ser Glu Gln Gly Ala
 1 5 10
 <210> 14
 <211> 10
 <212> PRT
 <213> Bos taurus
 <220>
 <221> UNSURE
 <222> (1)...(1)
 <223> Xaa in position 1 is Lysine or Arginine

<400> 14
 Xaa Ala Lys Glu Ala Leu Ala Ala Leu Lys
 1 5 10
 <210> 15
 <211> 8
 <212> PRT
 <213> Bos taurus
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 <222> (1)...(1)
 <223> Xaa in position 1 is Lysine or Arginine

<400> 15
 Xaa Phe Val Leu Gln Ala Lys Lys
 1 5
 <210> 16
 <211> 6
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (1)...(1)
 <223> Xaa in position 1 is Lysine or Arginine

<400> 16
 Xaa Leu Gly Glu Met Trp
 1 5

<210> 17
 <211> 16
 <212> PRT
 <213> Bos taurus

<400> 17
 Glu Tyr Lys Cys Leu Lys Phe Lys Trp Phe Lys Lys Ala Thr Val Met
 1 5 10 15

<210> 18
 <211> 10
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (8)...(8)
 <223> Xaa in position 8 is unknown.

<400> 18
 Glu Ala Lys Tyr Phe Ser Lys Xaa Asp Ala
 1 5 10

<210> 19
 <211> 7
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (2)...(2)
 <223> Xaa in position 2 is unknown.

<400> 19
 Glu Xaa Lys Phe Tyr Val Pro
 1 5

<210> 20
 <211> 26
 <212> PRT
 <213> Bos taurus

<400> 20
 Glu Leu Ser Phe Ala Ser Val Arg Leu Pro Gly Cys Pro Pro Gly Val
 1 5 10 15
 Asp Pro Met Val Ser Phe Pro Val Ala Leu
 20 25

<210> 21
 <211> 2003
 <212> DNA
 <213> Homo sapiens

<220>
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 tttctgtggt tccatccact tcttccccct cctcctccca taaacaactc tcctaccctt 120
 gcacccccaa taaataaata aaaggaggag ggcaaggggg gaggaggagg agtggtgctg 180
 cgaggggaag gaaaaggagg gcagcgcgag aagagccggg cagagtccga accgacagcc 240
 agaagccgc acgcacctcg cacc atg aga tgg cga cgc gcc ccg cgc cgc 291
 Met Arg Trp Arg Arg Ala Pro Arg Arg
 1 5
 tcc ggg cgt ccc ggc ccc cgg gcc cag cgc ccc ggc tcc gcc gcc cgc 339
 Ser Gly Arg Pro Gly Pro Arg Ala Gln Arg Pro Gly Ser Ala Ala Arg
 10 15 20 25
 tcg tcg ccg ccg ctg ccg ctg ctg cca cta ctg ctg ctg ctg ggg acc 387
 Ser Ser Pro Pro Leu Pro Leu Leu Pro Leu Leu Leu Leu Gly Thr
 30 35 40
 gcg gcc ctg gcg ccg ggg gcg gcg gcc ggc aac gag gcg gct ccc gcg 435
 Ala Ala Leu Ala Pro Gly Ala Ala Ala Gly Asn Glu Ala Ala Pro Ala
 45 50 55
 ggg gcc tcg gtg tgc tac tcg tcc ccg ccc agc gtg gga tcg gtg cag 483
 Gly Ala Ser Val Cys Tyr Ser Ser Pro Pro Ser Val Gly Ser Val Gln
 60 65 70
 gag cta gct cag cgc gcc gcg gtg gtc atc gag gga aag gtg cac ccg 531
 Glu Leu Ala Gln Arg Ala Ala Val Val Ile Glu Gly Lys Val His Pro
 75 80 85
 cag ccg ccg cag cag ggg gca ctc gac agg aag gcg gcg gcg gcg gcg 579
 Gln Arg Arg Gln Gln Gly Ala Leu Asp Arg Lys Ala Ala Ala Ala Ala
 90 95 100 105
 ggc gag gca ggg gcg tgg ggc ggc gat cgc gag ccg cca gcc gcg ggc 627
 Gly Glu Ala Gly Ala Trp Gly Gly Asp Arg Glu Pro Pro Ala Ala Gly
 110 115 120

cca cgg gcg ctg ggg ccg ccc gcc gag gag ccg ctg ctc gcc gcc aac	675
Pro Arg Ala Leu Gly Pro Pro Ala Glu Glu Pro Leu Leu Ala Ala Asn	
125 130 135	
ggg acc gtg ccc tct tgg ccc acc gcc ccg gtg ccc agc gcc ggc gag	723
Gly Thr Val Pro Ser Trp Pro Thr Ala Pro Val Pro Ser Ala Gly Glu	
140 145 150	
ccc ggg gag gag gcg ccc tat ctg gtg aag gtg cac cag gtg tgg gcg	771
Pro Gly Glu Glu Ala Pro Tyr Leu Val Lys Val His Gln Val Trp Ala	
155 160 165	
gtg aaa gcc ggg ggc ttg aag aag gac tcg ctg ctc acc gtg cgc ctg	819
Val Lys Ala Gly Gly Leu Lys Lys Asp Ser Leu Leu Thr Val Arg Leu	
170 175 180 185	
ggg acc tgg ggc cac ccc gcc ttc ccc tcc tgc ggg agg ctc aag gag	867
Gly Thr Trp Gly His Pro Ala Phe Pro Ser Cys Gly Arg Leu Lys Glu	
190 195 200	
gac agc agg tac atc ttc ttc atg gag ccc gac gcc aac agc acc agc	915
Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Asp Ala Asn Ser Thr Ser	
205 210 215	
cgc gcg ccg gcc gcc ttc cga gcc tct ttc ccc cct ctg gag acg ggc	963
Arg Ala Pro Ala Ala Phe Arg Ala Ser Phe Pro Pro Leu Glu Thr Gly	
220 225 230	
cgg aac ctc aag aag gag gtc agc cgg gtg ctg tgc aag cgg tgc gcc	1011
Arg Asn Leu Lys Lys Glu Val Ser Arg Val Leu Cys Lys Arg Cys Ala	
235 240 245	
ttg cct ccc caa ttg aaa gag atg aaa agc cag gaa tcg gct gca ggt	1059
Leu Pro Pro Gln Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala Gly	
250 255 260 265	
tcc aaa cta gtc ctt cgg tgt gaa acc agt tct gaa tac tcc tct ctc	1107
Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu	
270 275 280	
aga ttc aag tgg ttc aag aat ggg aat gaa ttg aat cga aaa aac aaa	1155
Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys Asn Lys	
285 290 295	
cca caa aat atc aag ata caa aaa aag cca ggg aag tca gaa ctt cgc	1203
Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu Leu Arg	
300 305 310	
att aac aaa gca tca ctg gct gat tct gga gag tat atg tgc aaa gtg	1251
Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val	

315	320	325	
atc agc aaa tta gga aat gac agt gcc tct gcc aat atc acc atc gtg			1299
Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val			
330	335	340	345
gaa tca aac gct aca tct aca tcc acc act ggg aca agc cat ctt gta			1347
Glu Ser Asn Ala Thr Ser Thr Ser Thr Thr Gly Thr Ser His Leu Val			
	350	355	360
aaa tgt gcg gag aag gag aaa act ttc tgt gtg aat gga ggg gag tgc			1395
Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys			
	365	370	375
ttc atg gtg aaa gac ctt tca aac ccc tcg aga tac ttg tgc aag tgc			1443
Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys			
	380	385	390
cca aat gag ttt act ggt gat cgc tgc caa aac tac gta atg gcc agc			1491
Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser			
	395	400	405
ttc tac agt acg tcc act ccc ttt ctg tct ctg cct gaa taggagcatg			1540
Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu			
410	415	420	
ctcagttggt gctgctttct tgttgctgca tctccctca gattccacct agagctagat			1600
gtgtcttacc agatctaata ttgactgcct ctgcctgtcg catgagaaca ttaacaaaag			1660
caattgtatt acttctctg ttgcgcacta gttggctctg agatactaat aggtgtgtga			1720
ggctccggat gtttctggaa ttgatattga atgatgtgat acaaattgat agtcaatatc			1780
aagcagtga atatatgaat aaaggcattt caaagtctca cttttattga taaaataaaa			1840
atcattctac tgaacagtcc atcttcttta tacaatgacc acatcctgaa aaggggtgtg			1900
ctaagctgta accgatatgc acttgaaatg atggtaagtt aattttgatt cagaatgtgt			1960
tatttgtcac aaataaacat aataaaaagga aaaaaaaaaaaa aaa			2003

<210> 22

<211> 12

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (11)...(11)

<223> Xaa in position 11 is unknown.

<400> 22

Ala Ser Leu Ala Asp Glu Tyr Glu Tyr Met Xaa Lys

1

5

10

<210> 23

<211> 11

<212> PRT
 <213> Bos taurus

 <220>
 <221> UNSURE
 <222> (9)...(9)
 <223> Xaa in position 9 is unknown.

 <400> 23
 Thr Glu Thr Ser Ser' Ser Gly Leu Xaa Leu Lys
 1 5 10

 <210> 24
 <211> 12
 <212> PRT
 <213> Bos taurus

 <400> 24
 Ala Ser Leu Ala Asp Glu Tyr Glu Tyr Met Arg Lys
 1 5 10

 <210> 25
 <211> 9
 <212> PRT
 <213> Bos taurus

 <220>
 <221> UNSURE
 <222> (7)...(7)
 <223> Xaa in position 7 is unknown.

 <400> 25
 Ala Gly Tyr Phe Ala Glu Xaa Ala Arg
 1 5

 <210> 26
 <211> 10
 <212> PRT
 <213> Bos taurus

 <400> 26
 Thr Thr Glu Met Ala Ser Glu Gln Gly Ala
 1 5 10

 <210> 27
 <211> 9
 <212> PRT
 <213> Bos taurus

 <400> 27
 Ala Lys Glu Ala Leu Ala Ala Leu Lys

<220>
 <221> UNSURE
 <222> (6)...(6)
 <223> Xaa in position 6 is unknown.

<400> 32
 Lys Leu Glu Phe Leu Xaa Ala Lys
 1 5

<210> 33
 <211> 9
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (1)...(1)
 <223> Xaa in position 1 is Lysine or Arginine.

<400> 33
 Xaa Val His Gln Val Trp Ala Ala Lys
 1 5

<210> 34
 <211> 14
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (1)...(11)
 <223> Xaa in position 1 is Lysine or Arginine; Xaa in 11 is unknown.

<400> 34
 Xaa Tyr Ile Phe Phe Met Glu Pro Glu Ala Xaa Ser Ser Gly
 1 5 10

<210> 35
 <211> 14
 <212> PRT
 <213> Bos taurus

<220>
 <221> UNSURE
 <222> (1)...(13)
 <223> Xaa in 1 is Lysine or Arginine; Xaa in 13 is unknown.

<400> 35
 Xaa Leu Gly Ala Trp Gly Pro Pro Ala Phe Pro Val Xaa Tyr

1 5 10

<210> 36
<211> 9
<212> PRT
<213> Bos taurus

<220>
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<222> (1)...(1)
<223> Xaa in position 1 is Lysine or Arginine.

<400> 36
Xaa Trp Phe Val Val Ile Glu Gly Lys
1 5

<210> 37
<211> 16
<212> PRT
<213> Bos taurus

<220>
<221> UNSURE
<222> (1)...(1)
<223> Xaa in position 1 is Lysine or Arginine.

<400> 37
Xaa Ala Ser Pro Val Ser Val Gly Ser Val Gln Glu Leu Val Gln Arg
1 5 10 15

<210> 38
<211> 13
<212> PRT
<213> Bos taurus

<220>
<221> UNSURE
<222> (1)...(1)
<223> Xaa in position 1 is Lysine or Arginine.

<400> 38
Xaa Val Cys Leu Leu Thr Val Ala Ala Leu Pro Pro Thr
1 5 10

<210> 39
<211> 7
<212> PRT
<213> Bos taurus

<220>
<221> UNSURE

<222> (1)...(6)

<223> Xaa in position 1 is Lysine or Arginine; Xaa in position 6 is unknown.

<400> 39

Xaa Asp Leu Leu Leu Xaa Val
1 5

<210> 40

<211> 39

<212> PRT

<213> Bos taurus

<400> 40

Cys Thr Cys Gly Cys Cys Lys Cys Cys Arg Thr Thr Cys Ala Cys Arg
1 5 10 15
Cys Ala Gly Ala Ala Gly Gly Thr Cys Thr Thr Cys Thr Cys Cys Thr
20 25 30
Thr Cys Thr Cys Ala Gly Cys
35

<210> 41

<211> 24

<212> PRT

<213> Bos taurus

<400> 41

Cys Cys Thr Cys Gly Cys Thr Cys Cys Thr Thr Cys Thr Thr Cys Thr
1 5 10 15
Thr Gly Cys Cys Cys Thr Thr Cys
20

<210> 42

<211> 60

<212> DNA

<213> Homo sapiens

<400> 42

aagtgcccaa atgagttttac tggatgatcgc tgccaaaact acgtaatggc cagctttctac 60

<210> 43

<211> 36

<212> DNA

<213> Homo sapiens

<400> 43

agtagctcca ctccctttct gtctctgcct gaatag 36

<210> 44

<211> 569

<212> DNA

<213> Homo sapiens

<400> 44

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ctgcatgacc	gtcttcggca	gagccttcgg	tctgaacgaa	acaatatgat	gaacattgcc	180
aatgggcctc	accatcctaa	cccaccccc	gagaatgtcc	agctggtgaa	tcaatacgta	240
tctaaaaacg	tcatctccag	tgagcatatt	gttgagagag	aagcagagac	atccttttcc	300
accagtcact	atacttccac	agcccatcac	tccactactg	tcacccagac	tcctagccac	360
agctggagca	acggacacac	tgaaagcatc	ctttccgaaa	gccactctgt	aatcgtgatg	420
tcatccgtag	aaaacagtag	gcacagcagc	ccaactgggg	gcccaagagg	acgtcttaat	480
ggcacaggag	gccctcgtga	atgtaacagc	ttcctcaggc	atgccagaga	aaccctgat	540
tcctaccgag	actctcctca	tagtgaaag				569

<210> 45

<211> 8

<212> PRT

<213> Bos taurus

<400> 45

Val	His	Gln	Val	Trp	Ala	Ala	Lys
1				5			

<210> 46

<211> 13

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (10)...(10)

<223> Xaa in position 10 is unknown.

<400> 46

Tyr	Ile	Phe	Phe	Met	Glu	Pro	Glu	Ala	Xaa	Ser	Ser	Gly
1				5					10			

<210> 47

<211> 13

<212> PRT

<213> Bos taurus

<220>

<221> UNSURE

<222> (12)...(12)

<223> Xaa in position 12 is unknown.

<400> 47

Leu	Gly	Ala	Trp	Gly	Pro	Pro	Ala	Phe	Pro	Val	Xaa	Tyr
1				5							10	

<210> 48
 <211> 8
 <212> PRT
 <213> Bos taurus

 <400> 48
 Trp Phe Val Val Ile Glu Gly Lys
 1 5

 <210> 49
 <211> 15
 <212> PRT
 <213> Bos taurus

 <400> 49
 Ala Ser Pro Val Ser Val Gly Ser Val Gln Glu Leu Val Gln Arg
 1 5 10 15

 <210> 50
 <211> 12
 <212> PRT
 <213> Bos taurus

 <400> 50
 Val Cys Leu Leu Thr Val Ala Ala Leu Pro Pro Thr
 1 5 10

 <210> 51
 <211> 9
 <212> PRT
 <213> Bos taurus

 <400> 51
 Lys Val His Gln Val Trp Ala Ala Lys
 1 5

 <210> 52
 <211> 13
 <212> PRT
 <213> Bos taurus

 <220>
 <221> UNSURE
 <222> (12)...(12)
 <223> Xaa in position 12 is unknown.

 <400> 52
 Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Xaa Lys
 1 5 10

 <210> 53

<211> 6
 <212> PRT
 <213> Bos taurus

 <220>
 <221> UNSURE
 <222> (5)...(5)
 <223> Xaa in position 5 is unknown.

 <400> 53
 Asp Leu Leu Leu Xaa Val
 1 5

 <210> 54
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 54
 tttyaarggng aygcncayac 20

 <210> 55
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 55
 catrtaytcr taytcrtcng c 21

 <210> 56
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 56
 tgytcngang ccatytcngt 20

 <210> 57
 <211> 20

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 57
 tgytcrctng ccatytcngt 20

 <210> 58
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 58
 ccdatnacca tnggnacytt 20

 <210> 59
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 59
 gcngcccana cytgtrtnac 20

 <210> 60
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 60
 gcytcnggyt ccatraaraa 20

 <210> 61
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

<400> 61
 ccytc datna cnacraacca 20

<210> 62
 <211> 17
 <212> DNA
 <213> Artificial Sequence

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 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

<400> 62
 tcngcraart anccngc 17

<210> 63
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
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 Homo sapiens

<400> 63
 gcngcnagng cytcyttngc 20

<210> 64
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 <212> DNA
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<220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

<400> 64
 gcngcyaang cytcyttngc 20

<210> 65
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 Homo sapiens

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ttyttngcyt gnagnacraa	20
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ttyttngcyt gyaanacraa	20
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tgnacnagyt cytgnac	17
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tgnacyaayt cytgnac	17
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<223> Degenerate probe/primer derived from Bos taurus or Homo sapiens	
<400> 69	
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<210> 70
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 70
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 <210> 71
 <211> 21
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 <213> Artificial Sequence

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 Homo sapiens

 <400> 71
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 <210> 72
 <211> 21
 <212> DNA
 <213> Artificial Sequence

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 Homo sapiens

 <400> 72
 ngartcngcn agngangcyt t 21

 <210> 73
 <211> 21
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 Homo sapiens

 <400> 73
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 <210> 74
 <211> 21
 <212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate probe/primer derived from Bos taurus or Homo sapiens

<400> 74

rcrttcngcn agngangcyt t 21

<210> 75

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate probe/primer derived from Bos taurus or Homo sapiens

<400> 75

ngartcngcy aarctngcyt t 21

<210> 76

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate probe/primer derived from Bos taurus or Homo sapiens

<400> 76

ngartcngcn agrctngcyt t 21

<210> 77

<211> 730

<212> DNA

<213> Homo sapiens

<400> 77

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gccttccatg gcggtcagcc ccttcattgga agaagagaga cctctacttc tcgtgacacc	180
accaaggctg cgggagaaga agtttgacca tcaccctcag cagttcagct ccttccacca	240
caaccccgcg catgacagta acagcctccc tgctagcccc ttgaggatag tggaggatga	300
ggagtatgaa acgacccaag agtacgagcc agcccaagag cctgttaaga aactcgccaa	360
tagccggcgg gccaaaagaa ccaagcccaa tggccacatt gctaacagat tgggaagtga	420
cagcaacaca agctcccaga gcagtaactc agagagtga acagaagatg aaagagtagg	480
tgaagatacg cctttcctgg gcatacagaa ccccttgcca gccagtcttg aggcaacacc	540
tgctttccgc ctggttgaca gcaggactaa cccagcaggc cgcttctcga cacaggaaga	600
aatccaggcc aggctgtcta gtgtaattgc taaccaagac cctattgctg tataaaacct	660
aaataaacac atagattcac ctgtaaaact ttattttata taataaagta ttccacctta	720

aattaaacaa	730
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	21
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	21
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<p> <210> 82 </p>	

<211> 20
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 <213> Artificial Sequence

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 Homo sapiens

 <400> 82
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 <210> 83
 <211> 20
 <212> DNA
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 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 83
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 <210> 84
 <211> 20
 <212> DNA
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 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 84
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 <210> 85
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

 <400> 85
 gargcnytn gngcnytnaa 20

 <210> 86
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

<400> 86
 gtnggntcng tncargaryt 20

<210> 87
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
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 Homo sapiens

<400> 87
 gtnggnagyg tncargaryt 20

<210> 88
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate probe/primer derived from Bos taurus or
 Homo sapiens

<400> 88
 nacyttyttn ardatytgnc c 21

<210> 89
 <211> 417
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (6)...(416)

<221> unsure
 <222> (14)...(135)
 <223> Xaa in positions 14, 23, 90, 100, 126, and 135 is
 unknown.

<400> 89
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 Asn Tyr Arg Asp Cys Ile Phe Met Ile Ile Ile Val Leu Xaa Asn
 1 5 10 15

ata ctt aaa ccg ctt tgg tcc nnn tct tgt agg aag tca gaa ctt cgc 98

Ile	Leu	Lys	Pro	Leu	Trp	Ser	Xaa	Ser	Cys	Arg	Lys	Ser	Glu	Leu	Arg	
				20					25					30		
att	agc	aaa	gcg	tca	ctg	gct	gat	tct	gga	gaa	tat	atg	tgc	aaa	gtg	146
Ile	Ser	Lys	Ala	Ser	Leu	Ala	Asp	Ser	Gly	Glu	Tyr	Met	Cys	Lys	Val	
			35					40					45			
atc	agc	aaa	cta	gga	aat	gac	agt	gcc	tct	gcc	aac	atc	acc	att	gtg	194
Ile	Ser	Lys	Leu	Gly	Asn	Asp	Ser	Ala	Ser	Ala	Asn	Ile	Thr	Ile	Val	
			50				55					60				
gag	tca	aac	ggg	aag	aga	tgc	cta	ctg	cgt	gct	att	tct	cag	tct	cta	242
Glu	Ser	Asn	Gly	Lys	Arg	Cys	Leu	Leu	Arg	Ala	Ile	Ser	Gln	Ser	Leu	
		65				70				75						
aga	gga	gtg	atc	aag	gta	tgt	ggg	cac	act	nnn	atc	acg	cag	gtg	tct	290
Arg	Gly	Val	Ile	Lys	Val	Cys	Gly	His	Thr	Xaa	Ile	Thr	Gln	Val	Ser	
	80				85				90					95		
gaa	atc	tca	ttg	nnn	aca	aat	aaa	aat	cat	gaa	agg	aaa	act	cta	tgt	338
Glu	Ile	Ser	Leu	Xaa	Thr	Asn	Lys	Asn	His	Glu	Arg	Lys	Thr	Leu	Cys	
			100					105					110			
ttg	aaa	tat	ctt	atg	ggg	cct	cct	gta	aag	ctc	ttc	act	cca	nnn	ggg	386
Leu	Lys	Tyr	Leu	Met	Gly	Pro	Pro	Val	Lys	Leu	Phe	Thr	Pro	Xaa	Gly	
			115					120					125			
gaa	ata	gac	ctg	aaa	tat	ata	nnn	att	att	t						417
Glu	Ile	Asp	Leu	Lys	Tyr	Ile	Xaa	Ile	Ile							
		130					135									

<210> 90

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (19)...(19)

<223> I

<221> modified_base

<222> (25)...(25)

<223> I

<221> modified_base

<222> (31)...(31)

<223> I

<400> 90

ccgaattctg caggaracnc arccngaycc ngg

33

<210> 91

<211> 37

<212> DNA

<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (14)...(14)

<223> I

<221> modified_base

<222> (20)...(20)

<223> I

<221> modified_base

<222> (23)...(23)

<223> I

<221> modified_base

<222> (29)...(29)

<223> I

<221> modified_base

<222> (35)...(35)

<223> I

<400> 91

aaggatcctg cagngrtan gcnccdatna ccatngg

37

<210> 92

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (16)...(16)

<223> I

<221> modified_base

<222> (22)...(22)
<223> I

<221> modified_base
<222> (25)...(25)
<223> I

<400> 92
ccgaattctg caggcngayt cnggngarta yatg

34

<210> 93
<211> 33
<212> DNA
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<221> modified_base
<222> (16)...(16)
<223> I

<221> modified_base
<222> (25)...(25)
<223> I

<400> 93
ccgaattctg caggcngaya gyggngarta yat

33

<210> 94
<211> 34
<212> DNA
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<223> Degenerate primer derived from Bos taurus

<221> modified_base
<222> (14)...(14)
<223> I

<221> modified_base
<222> (15)...(15)
<223> I

<221> modified_base
<222> (16)...(16)
<223> I

<221> modified_base

<222> (26)...(26)

<223> I

<221> modified_base

<222> (29)...(29)

<223> I

<400> 94

aaggatcctg cagnnncatr taytcncng artc

34

<210> 95

<211> 34

<212> DNA

<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (14)...(14)

<223> I

<221> modified_base

<222> (15)...(15)

<223> I

<221> modified_base

<222> (16)...(16)

<223> I

<221> modified_base

<222> (26)...(26)

<223> I

<400> 95

aaggatcctg cagnnncatr taytcncrc trtc

34

<210> 96

<211> 33

<212> DNA

<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (22)...(22)

<223> I

<221> modified_base

<222> (28)...(28)

<223> I

<221> modified_base

<222> (31)...(31)

<223> I

<400> 96

ccgaattctg cagcaycarg tntgggcngc naa

33

<210> 97

<211> 35

<212> DNA

<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (31)...(31)

<223> I

<400> 97

ccgaattctg cagathhtyt tyatggarcc ngarg

35

<210> 98

<211> 35

<212> DNA

<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base

<222> (18)...(18)

<223> I

<221> modified_base

<222> (21)...(21)

<223> I

<221> modified_base

<222> (24)...(24)

<223> I

<221> modified_base

<222> (27)...(27)

<223> I

<221> modified_base

<222> (33)...(33)

<223> I

<400> 98
ccgaattctg caggggggncc nccngcntty ccngt 35

<210> 99
<211> 33
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<221> modified_base
<222> (22)...(22)
<223> I

<221> modified_base
<222> (25)...(25)
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<400> 99
ccgaattctg cagtgggtyg tngtnathga rgg 33

<210> 100
<211> 35
<212> DNA
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<221> modified_base
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<221> modified_base
<222> (20)...(20)
<223> I

<221> modified_base
<222> (27)...(27)
<223> I

<400> 100
aaggatcctg cagyttnngcn ngcccanacy tgrtg 35

<210> 101
<211> 33
<212> DNA
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<220>

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<223> Degenerate primer derived from Bos taurus

<221> modified_base
<222> (19)...(19)
<223> I

<400> 101
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<210> 102
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Degenerate primer derived from Bos taurus

<221> modified_base
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<223> I

<221> modified_base
<222> (22)...(22)
<223> I

<221> modified_base
<222> (25)...(25)
<223> I

<221> modified_base
<222> (28)...(28)
<223> I

<221> modified_base
<222> (31)...(31)
<223> I

<400> 102
aaggatcctg cagacnggra angcngngg ncc
33

<210> 103
<211> 35
<212> DNA
<213> Artificial Sequence

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<223> Degenerate primer derived from Bos taurus

<221> modified_base
<222> (17)...(17)
<223> I

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<221> modified_base
 <222> (26)...(26)
 <223> I

<221> modified_base
 <222> (29)...(29)
 <223> I

<400> 103
 aaggatcctg cagyttnccy tcdatnacna craac 35

<210> 104
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate primer derived from Bos taurus

<221> modified_base
 <222> (18)...(18)
 <223> I

<400> 104
 catrtaytcr taytctcngc aaggatcctg cag 33

<210> 105
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate primer derived from Bos taurus

<221> modified_base
 <222> (19)...(19)
 <223> I

<221> modified_base
 <222> (25)...(25)
 <223> I

<221> modified_base
 <222> (31)...(31)
 <223> I

<400> 105
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<210> 106
 <211> 33

<212> DNA
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 <221> modified_base
 <222> (3)...(3)
 <223> I

 <221> modified_base
 <222> (18)...(18)
 <223> I

 <400> 106
 gcngcyaang cytcyttngc aaggatcctg cag 33

<210> 107
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate primer derived from Bos taurus

 <221> modified_base
 <222> (3)...(3)
 <223> I

 <221> modified_base
 <222> (6)...(6)
 <223> I

 <221> modified_base
 <222> (9)...(9)
 <223> I

 <221> modified_base
 <222> (18)...(18)
 <223> I

 <400> 107
 gcngcnagng cytcyttngc aaggatcctg cag 33

<210> 108
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Degenerate primer derived from Bos taurus

<221> modified_base
 <222> (3)...(3)
 <223> I

<221> modified_base
 <222> (12)...(12)
 <223> I

<221> modified_base
 <222> (15)...(15)
 <223> I

<400> 108
 tcngcraart anccngcaag gatcctgcag 30

<210> 109
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate primer derived from Bos taurus

<400> 109
 catcgatctg caggctgatt ctggagaata tatgtgca 38

<210> 110
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate primer derived from Bos taurus

<400> 110
 aaggatcctg cagccacatc tcgagtcgac atcgatt 37

<210> 111
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate primer derived from Bos taurus

<400> 111
 ccgaattctg cagtgatcag caaactagga aatgaca 37

<210> 112
 <211> 37
 <212> DNA

<213> Artificial Sequence
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 <223> Degenerate primer derived from Bos taurus
 <400> 112
 catcgatctg cagcctagtt tgctgatcac ttgcac 37
 <210> 113
 <211> 37
 <212> DNA
 <213> Artificial Sequence
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 <223> Degenerate primer derived from Bos taurus
 <400> 113
 aaggatcctg cagtatatctc tccagaatca gccagtg 37
 <210> 114
 <211> 34
 <212> DNA
 <213> Artificial Sequence
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 <223> Degenerate primer derived from Bos taurus
 <400> 114
 aaggatcctg caggcacgca gtaggcatct ctta 34
 <210> 115
 <211> 35
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Degenerate primer derived from Bos taurus
 <400> 115
 ccgaattctg cagcagaact tcgcattagc aaagc 35
 <210> 116
 <211> 33
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Degenerate primer derived from Bos taurus
 <400> 116
 catccccgga tgaagagtca ggagtctgtg gca 33

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<210> 117
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Degenerate primer derived from Bos taurus

<400> 117
ataccggggc tgcagacaat gagatttcac acacctgcg
39

<210> 118
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Degenerate primer derived from Bos taurus

<400> 118
aaggatcctg cagtttggaa cctgccacag actcct
36

<210> 119
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Degenerate primer derived from Bos taurus

<400> 119
ataccggggc tgcagatgag atttcacaca cctgcgtga
39

<210> 120
<211> 12
<212> PRT
<213> Bos taurus

<400> 120
His Gln Val Trp Ala Ala Lys Ala Ala Gly Leu Lys
1          5          10

<210> 121
<211> 16
<212> PRT
<213> Bos taurus

<400> 121
Gly Gly Leu Lys Lys Asp Ser Leu Leu Thr Val Arg Leu Gly Ala Asn
1          5          10          15

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<210> 122
<211> 13
<212> PRT
<213> Bos taurus

<220>
<221> UNSURE
<222> (12)...(12)
<223> Xaa in 12 is unknown.

<400> 122
Leu Gly Ala Trp Gly Pro Pro Ala Phe Pro Val Xaa Tyr
1 5 10

<210> 123
<211> 23
<212> PRT
<213> Bos taurus

<400> 123
Leu Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser
1 5 10 15
Cys Gly Arg Leu Lys Glu Asp
20

<210> 124
<211> 13
<212> PRT
<213> Bos taurus

<220>
<221> UNSURE
<222> (10)...(10)
<223> Xaa in 10 is unknown.

<400> 124
Tyr Ile Phe Phe Met Glu Pro Glu Ala Xaa Ser Ser Gly
1 5 10

<210> 125
<211> 23
<212> PRT
<213> Bos taurus

<400> 125
Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Glu Ala Asn Ser
1 5 10 15
Ser Gly Gly Pro Gly Arg Leu
20

<210> 126

<211> 14
 <212> PRT
 <213> Bos taurus

 <400> 126
 Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser
 1 5 10

 <210> 127
 <211> 16
 <212> PRT
 <213> Bos taurus

 <400> 127
 Glu Tyr Lys Cys Leu Lys Phe Lys Trp Phe Lys Lys Ala Thr Val Met
 1 5 10 15

 <210> 128
 <211> 26
 <212> PRT
 <213> Bos taurus

 <400> 128
 Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu Lys Phe Lys Trp Phe Lys
 1 5 10 15
 Asn Gly Ser Glu Leu Ser Arg Lys Asn Lys
 20 25

 <210> 129
 <211> 13
 <212> PRT
 <213> Bos taurus

 <220>
 <221> UNSURE
 <222> (12)...(12)
 <223> Xaa in 12 is unknown.

 <400> 129
 Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Xaa Lys
 1 5 10

 <210> 130
 <211> 23
 <212> PRT
 <213> Bos taurus

 <400> 130
 Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met
 1 5 10 15
 Cys Lys Val Ile Ser Lys Leu

20

<210> 131
<211> 12
<212> PRT
<213> Bos taurus

<400> 131
Ala Ser Leu Ala Asp Glu Tyr Glu Tyr Met Arg Lys
1 5 10

<210> 132
<211> 22
<212> PRT
<213> Bos taurus

<400> 132
Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys
1 5 10 15
Lys Val Ile Ser Lys Leu
20

<210> 133
<211> 744
<212> DNA
<213> Bos taurus

<220>
<221> CDS
<222> (8)...(625)

<400> 133
cctgcag cat caa gtg tgg gcg gcg aaa gcc ggg ggc ttg aag aag gac 49
His Gln Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp
1 5 10
tcg ctg ctc acc gtg cgc ctg ggc gcc tgg ggc cac ccc gcc ttc ccc 97
Ser Leu Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro
15 20 25 30
tcc tgc ggg cgc ctc aag gag gac agc agg tac atc ttc ttc atg gag 145
Ser Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu
35 40 45
ccc gag gcc aac agc agc ggc ggg ccc ggc cgc ctt ccg agc ctc ctt 193
Pro Glu Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu
50 55 60
ccc ccc tct cga gac ggg ccg gaa cct caa gaa gga ggt cag ccg ggt 241
Pro Pro Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly
65 70 75

gct gtg caa cgg tgc gcc ttg cct ccc cgc ttg aaa gag atg aag agt	289
Ala Val Gln Arg Cys Ala Leu Pro Pro Arg Leu Lys Glu Met Lys Ser	
80 85 90	
cag gag tct gtg gca ggt tcc aaa cta gtg ctt cgg tgc gag acc agt	337
Gln Glu Ser Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser	
95 100 105 110	
tct gaa tac tcc tct ctc aag ttc aag tgg ttc aag aat ggg agt gaa	385
Ser Glu Tyr Ser Ser Leu Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu	
115 120 125	
tta agc cga aag aac aaa cca gaa aac atc aag ata cag aaa agg ccg	433
Leu Ser Arg Lys Asn Lys Pro Glu Asn Ile Lys Ile Gln Lys Arg Pro	
130 135 140	
ggg aag tca gaa ctt cgc att agc aaa gcg tca ctg gct gat tct gga	481
Gly Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly	
145 150 155	
gaa tat atg tgc aaa gtg atc agc aaa cta gga aat gac agt gcc tct	529
Glu Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser	
160 165 170	
gcc aac atc acc att gtg gag tca aac ggt aag aga tgc cta ctg cgt	577
Ala Asn Ile Thr Ile Val Glu Ser Asn Gly Lys Arg Cys Leu Leu Arg	
175 180 185 190	
gct att tct cag tct cta aga gga gtg atc aag gta tgt ggt cac act	625
Ala Ile Ser Gln Ser Leu Arg Gly Val Ile Lys Val Cys Gly His Thr	
195 200 205	
tgaatcacgc aggtgtgtga aatctcattg tcaacaaata aaaatcatga aaggaaaaaa	685
aaaaaaaaa aatcgatgtc gactcgagat gtggctgcag gtcgactcta gaggatccc	744
<210> 134	
<211> 1193	
<212> DNA	
<213> Bos taurus	
<220>	
<221> CDS	
<222> (8)...(796)	
<400> 134	
cctgcag cat caa gtg tgg gcg gcg aaa gcc ggg ggc ttg aag aag gac	49
His Gln Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp	
1 5 10	
tcg ctg ctc acc gtg cgc ctg ggc gcc tgg ggc cac ccc gcc ttc ccc	97

Ser	Leu	Leu	Thr	Val	Arg	Leu	Gly	Ala	Trp	Gly	His	Pro	Ala	Phe	Pro		
15					20					25					30		
tcc	tgc	ggg	cgc	ctc	aag	gag	gac	agc	agg	tac	atc	ttc	ttc	atg	gag	145	
Ser	Cys	Gly	Arg	Leu	Lys	Glu	Asp	Ser	Arg	Tyr	Ile	Phe	Phe	Met	Glu		
				35				40						45			
ccc	gag	gcc	aac	agc	agc	ggc	ggg	ccc	ggc	cgc	ctt	ccg	agc	ctc	ctt	193	
Pro	Glu	Ala	Asn	Ser	Ser	Gly	Gly	Pro	Gly	Arg	Leu	Pro	Ser	Leu	Leu		
			50					55					60				
ccc	ccc	tct	cga	gac	ggg	ccg	gaa	cct	caa	gaa	gga	ggg	cag	ccg	ggg	241	
Pro	Pro	Ser	Arg	Asp	Gly	Pro	Glu	Pro	Gln	Glu	Gly	Gly	Gln	Pro	Gly		
		65					70					75					
gct	gtg	caa	cgg	tgc	gcc	ttg	cct	ccc	cgc	ttg	aaa	gag	atg	aag	agt	289	
Ala	Val	Gln	Arg	Cys	Ala	Leu	Pro	Pro	Arg	Leu	Lys	Glu	Met	Lys	Ser		
	80					85					90						
cag	gag	tct	gtg	gca	ggg	tcc	aaa	cta	gtg	ctt	cgg	tgc	gag	acc	agt	337	
Gln	Glu	Ser	Val	Ala	Gly	Ser	Lys	Leu	Val	Leu	Arg	Cys	Glu	Thr	Ser		
	95				100				105						110		
tct	gaa	tac	tcc	tct	ctc	aag	ttc	aag	tgg	ttc	aag	aat	ggg	agt	gaa	385	
Ser	Glu	Tyr	Ser	Ser	Leu	Lys	Phe	Lys	Trp	Phe	Lys	Asn	Gly	Ser	Glu		
				115				120						125			
tta	agc	cga	aag	aac	aaa	cca	gaa	aac	atc	aag	ata	cag	aaa	agg	ccg	433	
Leu	Ser	Arg	Lys	Asn	Lys	Pro	Glu	Asn	Ile	Lys	Ile	Gln	Lys	Arg	Pro		
			130					135					140				
ggg	aag	tca	gga	ctt	cgc	att	agc	aaa	gcg	tca	ctg	gct	gat	tct	gga	481	
Gly	Lys	Ser	Gly	Leu	Arg	Ile	Ser	Lys	Ala	Ser	Leu	Ala	Asp	Ser	Gly		
		145					150					155					
gaa	tat	atg	tgc	aaa	gtg	atc	agc	aaa	cta	gga	aat	gac	agt	gcc	tct	529	
Glu	Tyr	Met	Cys	Lys	Val	Ile	Ser	Lys	Leu	Gly	Asn	Asp	Ser	Ala	Ser		
	160					165				170							
gcc	aac	atc	acc	att	gtg	gag	tca	aac	gcc	aca	tcc	aca	tct	aca	gct	577	
Ala	Asn	Ile	Thr	Ile	Val	Glu	Ser	Asn	Ala	Thr	Ser	Thr	Ser	Thr	Ala		
	175				180				185					190			
ggg	aca	agc	cat	ctt	gtc	aag	tgt	gca	gag	aag	gag	aaa	act	ttc	tgt	625	
Gly	Thr	Ser	His	Leu	Val	Lys	Cys	Ala	Glu	Lys	Glu	Lys	Thr	Phe	Cys		
			195					200					205				
gtg	aat	gga	ggc	gag	tgc	ttc	atg	gtg	aaa	gac	ctt	tca	aat	ccc	tca	673	
Val	Asn	Gly	Gly	Glu	Cys	Phe	Met	Val	Lys	Asp	Leu	Ser	Asn	Pro	Ser		
			210					215					220				

aga tac ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act	721
Arg Tyr Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr	
225 230 235	
gag aat gtg ccc atg aaa gtc caa acc caa gaa agt gcc caa atg agt	769
Glu Asn Val Pro Met Lys Val Gln Thr Gln Glu Ser Ala Gln Met Ser	
240 245 250	
tta ctg gtg atc gct gcc aaa act acg taatggccag cttctacagt	816
Leu Leu Val Ile Ala Ala Lys Thr Thr	
255 260	
acgtccactc cctttctgtc tctgcctgaa tagcgcatct cagtcggtgc cgctttcttg	876
ttgccgcata tccctcaga ttctctctag agctagatgc gttttaccag gtctaacatt	936
gactgcctct gcctgtcgca tgagaacatt aacacaagcg attgtatgac ttctctgtc	996
cgtgactagt gggctctgag ctactcgtag gtgcgtaagg ctccagtgtt tctgaaattg	1056
atcttgaatt actgtgatac gacatgatag tccctctcac ccagtgcaat gacaataaag	1116
gccttgaaaa gtcaaaaaaa aaaaaaaaaa aaaaaatcga tgtcgactcg agatgtggct	1176
gcaggtcgac tctagag	1193
<210> 135	
<211> 1108	
<212> DNA	
<213> Bos taurus	
<220>	
<221> CDS	
<222> (8)...(778)	
<400> 135	
cctgcag cat caa gtg tgg gcg gcg aaa gcc ggg ggc ttg aag aag gac	49
His Gln Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp	
1 5 10	
tcg ctg ctc acc gtg cgc ctg ggc gcc tgg ggc cac ccc gcc ttc ccc	97
Ser Leu Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro	
15 20 25 30	
tcc tgc ggg cgc ctc aag gag gac agc agg tac atc ttc ttc atg gag	145
Ser Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu	
35 40 45	
ccc gag gcc aac agc agc ggc ggg ccc ggc cgc ctt ccg agc ctc ctt	193
Pro Glu Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu	
50 55 60	
ccc ccc tct cga gac ggg ccg gaa cct caa gaa gga ggt cag ccg ggt	241
Pro Pro Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly	
65 70 75	
gct gtg caa cgg tgc gcc ttg cct ccc cgc ttg aaa gag atg aag agt	289

Ala Val Gln Arg Cys Ala Leu Pro Pro Arg Leu Lys Glu Met Lys Ser	
80 85 90	
cag gag tct gtg gca ggt tcc aaa cta gtg ctt cgg tgc gag acc agt	337
Gln Glu Ser Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser	
95 100 105 110	
tct gaa tac tcc tct ctc aag ttc aag tgg ttc aag aat ggg agt gaa	385
Ser Glu Tyr Ser Ser Leu Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu	
115 120 125	
tta agc cga aag aac aaa cca gaa aac atc aag ata cag aaa agg ccg	433
Leu Ser Arg Lys Asn Lys Pro Glu Asn Ile Lys Ile Gln Lys Arg Pro	
130 135 140	
ggg aag tca gaa ctt cgc att agc aaa gcg tca ctg gct gat tct gga	481
Gly Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly	
145 150 155	
gaa tat atg tgc aaa gtg atc agc aaa cta gga aat gac agt gcc tct	529
Glu Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser	
160 165 170	
gcc aac atc acc att gtg gag tca aac gcc aca tcc aca tct aca gct	577
Ala Asn Ile Thr Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala	
175 180 185 190	
ggg aca agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt	625
Gly Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys	
195 200 205	
gtg aat gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca	673
Val Asn Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser	
210 215 220	
aga tac ttg tgc aag tgc cca aat gag ttt act ggt gat cgc tgc caa	721
Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln	
225 230 235	
aac tac gta atg gcc agc ttc tac agt acg tcc act ccc ttt ctg tct	769
Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser	
240 245 250	
ctg cct gaa tagcgcattct cagtcgggtgc cgctttcttg ttgccgcattc	818
Leu Pro Glu	
255	
ccccctcaga ttccgcctag agctagatgc gttttaccag gtctaacatt gactgcctct	878
gcctgtcgca tgagaacatt aacacaagcg attgtatgac ttctctgtc cgtgactagt	938
gggctctgag ctactcgtag gtgcgtaagg ctccagtgtt tctgaaattg atcttgaatt	998
actgtgatac gacatgatag tccctctcac ccagtgaat gacaataaag gccttgaaaa	1058

gtcaaaaaaa aaaaaaaaaa aaaaatcgat gtcgactcga gatgtggctg

1108

<210> 136

<211> 561

<212> DNA

<213> Bos taurus

<220>

<221> CDS

<222> (460)...(561)

<223> N in position 214 is unknown.

<221> variation

<222> (560)...(560)

<223> N in position 560 varies.

<221> variation

<222> (561)...(561)

<223> N in position 561 varies.

<221> variation

<222> (34)...(34)

<223> Xaa in position 34 is Ala.

<400> 136

agtttcccc	cccaacttgt	cggaactctg	ggctcgcgcg	cagggcagga	gcggagcggc	60
ggcggctgcc	caggcgatgc	gagcgcgggc	cggacggtaa	tcgcctctcc	ctcctcgggc	120
tgcgagcgcg	cgggaccgag	gcagcgacag	gagcggaccg	cggcgggaac	cgaggactcc	180
ccagcggcgc	gccagcagga	gccaccccg	gagncgtg	accgggacgg	agcggccgcc	240
agtcccaggt	ggcccggacc	gcacgttg	tccccgcg	ccccgccggc	gacaggagac	300
gctccccccc	acgcgcgcg	cgccctgg	cggtcgctg	ccgcctcca	ctccggggac	360
aaacttttcc	cgaagccgat	cccagccctc	ggacccaaac	ttgtcgcgcg	tcgccttcgc	420
cgggagccgt	ccgcgcagag	cgtgcacttc	tcgggcgag	atg tcg gag	cgc aga	474
				Met Ser Glu Arg Arg		
				1	5	

gaa ggc aaa ggc aag ggg aag ggc ggc aag aag gac cga ggc tcc ggg	522
Glu Gly Lys Gly Lys Gly Lys Gly Gly Lys Lys Asp Arg Gly Ser Gly	
10 15 20	

aag aag ccc gtg ccc gcg gct ggc ggc ccg agc cca gnn	561
Lys Lys Pro Val Pro Ala Ala Gly Gly Pro Ser Pro Xaa	
25 30	

<210> 137

<211> 252

<212> DNA

<213> Bos taurus

<220>
 <221> CDS
 <222> (3)...(251)

<221> variation
 <222> (8)...(8)
 <223> N in position 8 varies.

<221> variation
 <222> (2)...(2)
 <223> Xaa in position 2 is Gln.

<400> 137
 cc cat can gtg tgg gcg gcg aaa gcc ggg ggc ttg aag aag gac tcg 47
 His Xaa Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp Ser
 1 5 10 15
 ctg ctc acc gtg cgc ctg ggc gcc tgg ggc cac ccc gcc ttc ccc tcc 95
 Leu Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser
 20 25 30
 tgc ggg cgc ctc aag gag gac agc agg tac atc ttc ttc atg gag ccc 143
 Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro
 35 40 45
 gag gcc aac agc agc ggc ggg ccc ggc cgc ctt ccg agc ctc ctt ccc 191
 Glu Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu Pro
 50 55 60
 ccc tct cga gac ggg ccg gaa cct caa gaa gga ggt cag ccg ggt gct 239
 Pro Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly Ala
 65 70 75
 gtg caa cgg tgc g 252
 Val Gln Arg Cys
 80

<210> 138
 <211> 179
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (3)...(179)
 <221> variation
 <222> (179)...(179)
 <223> N in position 179 varies.

<221> variation
 <222> (59)...(59)
 <223> Xaa in position 59 is Gly.

<400> 138
 cc ttg cct ccc cgc ttg aaa gag atg aag agt cag gag tct gtg gca 47
 Leu Pro Pro Arg Leu Lys Glu Met Lys Ser Gln Glu Ser Val Ala
 1 5 10 15
 ggt tcc aaa cta gtg ctt cgg tgc gag acc agt tct gaa tac tcc tct 95
 Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser
 20 25 30
 ctc aag ttc aag tgg ttc aag aat ggg agt gaa tta agc cga aag aac 143
 Leu Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu Leu Ser Arg Lys Asn
 35 40 45
 aaa cca caa aac atc aag ata cag aaa agg ccg ggn 179
 Lys Pro Gln Asn Ile Lys Ile Gln Lys Arg Pro Xaa
 50 55

<210> 139
 <211> 124
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (2)...(124)

<221> variation
 <222> (123)...(124)
 <223> N in positions 123 and 124 varies.

<221> variation
 <222> (41)...(41)
 <223> Xaa in position 41 is Ala.

<400> 139
 g aag tca gaa ctt cgc att agc aaa gcg tca ctg gct gat tct gga gaa 49
 Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu
 1 5 10 15
 tat atg tgc aaa gtg atc agc aaa cta gga aat gac agt gcc tct gcc 97
 Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala
 20 25 30
 aac atc acc att gtg gag tca aac gnn 124
 Asn Ile Thr Ile Val Glu Ser Asn Xaa
 35 40

<210> 140
 <211> 417
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (84)...(272)

<400> 140
 tctaaaaacta cagagactgt attttcatga tcatcatagt tctgtgaaat atacttaaac 60
 cgctttggtc ctgatcttgt agg aag tca gaa ctt cgc att agc aaa gcg tca 113
 Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser
 1 5 10

 ctg gct gat tct gga gaa tat atg tgc aaa gtg atc agc aaa cta gga 161
 Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Ile Ser Lys Leu Gly
 15 20 25

 aat gac agt gcc tct gcc aac atc acc att gtg gag tca aac ggt aag 209
 Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser Asn Gly Lys
 30 35 40

 aga tgc cta ctg cgt gct att tct cag tct cta aga gga gtg atc aag 257
 Arg Cys Leu Leu Arg Ala Ile Ser Gln Ser Leu Arg Gly Val Ile Lys
 45 50 55

 gta tgt ggt cac act tgaatcacgc aggtgtgtga aatctcattg tgaacaaata 312
 Val Cys Gly His Thr
 60

 aaaatcatga aaggaaaact ctatgtttga aatatcttat gggtcctcct gtaaagctct 372
 tcaactccata aggtgaaata gacctgaaat atatatagat tattt 417

<210> 141
 <211> 102
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (1)...(102)

<221> variation
 <222> (1)...(1)
 <223> N in position 1 varies.

<221> variation
 <222> (1)...(1)

<223> Xaa in position 1 is Glu.

<400> 141

nag	atc	acc	act	ggc	atg	cca	gcc	tca	act	gag	aca	gcg	tat	gtg	tct	48
Xaa	Ile	Thr	Thr	Gly	Met	Pro	Ala	Ser	Thr	Glu	Thr	Ala	Tyr	Val	Ser	
1				5					10					15		

tca	gag	tct	ccc	att	aga	ata	tca	gta	tca	aca	gaa	gga	aca	aat	act	96
Ser	Glu	Ser	Pro	Ile	Arg	Ile	Ser	Val	Ser	Thr	Glu	Gly	Thr	Asn	Thr	
			20				25						30			

tct	tca	t														103
Ser	Ser															

<210> 142

<211> 69

<212> DNA

<213> Bos taurus

<220>

<221> CDS

<222> (1)...(69)

<400> 142

aag	tgc	caa	cct	gga	ttc	act	gga	gcg	aga	tgt	act	gag	aat	gtg	ccc	48
Lys	Cys	Gln	Pro	Gly	Phe	Thr	Gly	Ala	Arg	Cys	Thr	Glu	Asn	Val	Pro	
1				5					10					15		

atg	aaa	gtc	caa	acc	caa	gaa										69
Met	Lys	Val	Gln	Thr	Gln	Glu										
			20													

<210> 143

<211> 60

<212> DNA

<213> Bos taurus

<220>

<221> CDS

<222> (1)...(60)

<400> 143

aag	tgc	cca	aat	gag	ttt	act	ggg	gat	cgc	tgc	caa	aac	tac	gta	atg	48
Lys	Cys	Pro	Asn	Glu	Phe	Thr	Gly	Asp	Arg	Cys	Gln	Asn	Tyr	Val	Met	
1				5				10					15			

gcc	agc	ttc	tac													60
Ala	Ser	Phe	Tyr													

20

<210> 144
<211> 36
<212> DNA
<213> Bos taurus

<220>
<221> CDS
<222> (1)...(33)

<400> 144
agt acg tcc act ccc ttt ctg tct ctg cct gaa tag 36
Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu
1 5 10

<210> 145
<211> 27
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(27)
<223>

<400> 145
aag cat ctt ggg att gaa ttt atg gag 27
Lys His Leu Gly Ile Glu Phe Met Glu
1 5

<210> 146
<211> 569
<212> DNA
<213> Bos taurus

<220>
<221> CDS
<222> (1)...(565)

<400> 146
aaa gcg gag gag ctc tac cag aag aga gtg ctc acc att acc ggc att 48
Lys Ala Glu Glu Leu Tyr Gln Lys Arg Val Leu Thr Ile Thr Gly Ile
1 5 10 15

tgc atc gcg ctg ctc gtg gtt ggc atc atg tgt gtg gtg gtc tac tgc 96
Cys Ile Ala Leu Leu Val Val Gly Ile Met Cys Val Val Val Tyr Cys

20	25	30	
aaa acc aag aaa caa cgg aaa aag ctt cat gac cgg ctt cgg cag agc			144
Lys Thr Lys Lys Gln Arg Lys Lys Leu His Asp Arg Leu Arg Gln Ser			
35	40	45	
ctt cgg tct gaa aga aac acc atg atg aac gta gcc aac ggg ccc cac			192
Leu Arg Ser Glu Arg Asn Thr Met Met Asn Val Ala Asn Gly Pro His			
50	55	60	
cac ccc aat ccg ccc ccc gag aac gtg cag ctg gtg aat caa tac gta			240
His Pro Asn Pro Pro Pro Glu Asn Val Gln Leu Val Asn Gln Tyr Val			
65	70	75	80
tct aaa aat gtc atc tct agc gag cat att gtt gag aga gag gcg gag			288
Ser Lys Asn Val Ile Ser Ser Glu His Ile Val Glu Arg Glu Ala Glu			
85	90	95	
agc tct ttt tcc acc agt cac tac act tcg aca gct cat cat tcc act			336
Ser Ser Phe Ser Thr Ser His Tyr Thr Ser Thr Ala His His Ser Thr			
100	105	110	
act gtc act cag act ccc agt cac agc tgg agc aat gga cac act gaa			384
Thr Val Thr Gln Thr Pro Ser His Ser Trp Ser Asn Gly His Thr Glu			
115	120	125	
agc atc att tcg gaa agc cac tct gtc atc gtg atg tca tcc gta gaa			432
Ser Ile Ile Ser Glu Ser His Ser Val Ile Val Met Ser Ser Val Glu			
130	135	140	
aac agt agg cac agc agc ccg act ggg ggc ccg aga gga cgt ctc aat			480
Asn Ser Arg His Ser Ser Pro Thr Gly Gly Pro Arg Gly Arg Leu Asn			
145	150	155	160
ggc ttg gga ggc cct cgt gaa tgt aac agc ttc ctc agg cat gcc aga			528
Gly Leu Gly Gly Pro Arg Glu Cys Asn Ser Phe Leu Arg His Ala Arg			
165	170	175	
gaa acc cct gac tcc tac cga gac tct cct cat agt g aaag			569
Glu Thr Pro Asp Ser Tyr Arg Asp Ser Pro His Ser			
180	185		

<210> 147
 <211> 730
 <212> DNA
 <213> Bos taurus

 <220>
 <221> CDS
 <222> (2)...(652)

<400> 147

g tat gta tca gca atg acc acc ccg gct cgt atg tca cct gta gat ttc	49
Tyr Val Ser Ala Met Thr Thr Pro Ala Arg Met Ser Pro Val Asp Phe	
1 5 10 15	
cac acg cca agc tcc ccc aag tca ccc cct tcg gaa atg tcc ccg ccc	97
His Thr Pro Ser Ser Pro Lys Ser Pro Pro Ser Glu Met Ser Pro Pro	
20 25 30	
gtg tcc agc acg acg gtc tcc atg ccc tcc atg gcg gtc agt ccc ttc	145
Val Ser Ser Thr Thr Val Ser Met Pro Ser Met Ala Val Ser Pro Phe	
35 40 45	
gtg gaa gag gag aga ccc ctg ctc ctt gtg acg cca cca cgg ctg cgg	193
Val Glu Glu Glu Arg Pro Leu Leu Leu Val Thr Pro Pro Arg Leu Arg	
50 55 60	
gag aag tat gac cac cac gcc cag caa ttc aac tcg ttc cac tgc aac	241
Glu Lys Tyr Asp His His Ala Gln Gln Phe Asn Ser Phe His Cys Asn	
65 70 75 80	
ccc gcg cat gag agc aac agc ctg ccc ccc agc ccc ttg agg ata gtg	289
Pro Ala His Glu Ser Asn Ser Leu Pro Pro Ser Pro Leu Arg Ile Val	
85 90 95	
gag gat gag gaa tat gaa acg acc cag gag tac gaa cca gct caa gag	337
Glu Asp Glu Glu Tyr Glu Thr Thr Gln Glu Tyr Glu Pro Ala Gln Glu	
100 105 110	
ccg gtt aag aaa ctc acc aac agc agc cgg cgg gcc aaa aga acc aag	385
Pro Val Lys Lys Leu Thr Asn Ser Ser Arg Arg Ala Lys Arg Thr Lys	
115 120 125	
ccc aat ggt cac att gcc cac agg ttg gaa atg gac aac aac aca ggc	433
Pro Asn Gly His Ile Ala His Arg Leu Glu Met Asp Asn Asn Thr Gly	
130 135 140	
gct gac agc agt aac tca gag agc gaa aca gag gat gaa aga gta gga	481
Ala Asp Ser Ser Asn Ser Glu Ser Glu Thr Glu Asp Glu Arg Val Gly	
145 150 155 160	
gaa gat acg cct ttc ctg gcc ata cag aac ccc ctg gca gcc agt ctc	529
Glu Asp Thr Pro Phe Leu Ala Ile Gln Asn Pro Leu Ala Ala Ser Leu	
165 170 175	
gag gcg gcc cct gcc ttc cgc ctg gtc gac agc agg act aac cca aca	577
Glu Ala Ala Pro Ala Phe Arg Leu Val Asp Ser Arg Thr Asn Pro Thr	
180 185 190	
ggc ggc ttc tct ccg cag gaa gaa ttg cag gcc agg ctc tcc ggt gta	625
Gly Gly Phe Ser Pro Gln Glu Glu Leu Gln Ala Arg Leu Ser Gly Val	

195	200	205	
atc gct aac caa gac cct atc gct gtc taaaaccgaa atacacccat			672
Ile Ala Asn Gln Asp Pro Ile Ala Val			
210	215		
agattcacct gtaaaacttt attttatata ataaagtatt ccaccttaaa ttaaacaa			730
<210> 148			
<211> 1652			
<212> DNA			
<213> Bos taurus			
<220>			
<221> CDS			
<222> (459) ... (1181)			
<400> 148			
agtttccccc cccaacttgt cggaactctg ggctcgcgcg cagggcagga gcggagcggc			60
ggcggtgcc caggcgatgc gagcgcgggc cggacggtaa tcgcctctcc ctccctcgggc			120
tgcgagcgcg ccggaccgag gcagcgacag gagcggaccg cggcggaac cgaggactcc			180
ccagcggcgc gccagcagga gccaccccgc gagcgtgcga ccgggacgga gcgcccgcga			240
gtcccaggtg gcccggaccg cacgttgctg ccccgcgctc cccgcccggc acaggagacg			300
ctccccccca cgccgcgcgc gcctcgggccc ggtcgctggc ccgcctccac tccggggaca			360
aacttttccc gaagccgac ccagccctcg gacccaaact tgtcgcgctg cgccttcgcc			420
gggagccgctc cgcgccagagc gtgcacttct cgggcgag atg tcg gag cgc aga gaa			476
	Met Ser Glu Arg Arg Glu		
	1 5		
ggc aaa ggc aag ggg aag ggc ggc aag aag gac cga ggc tcc ggg aag			524
Gly Lys Gly Lys Gly Lys Gly Gly Lys Lys Asp Arg Gly Ser Gly Lys			
10 15 20			
aag ccc gtg ccc gcg gct ggc ggc ccg agc cca gcc ttg cct ccc cgc			572
Lys Pro Val Pro Ala Ala Gly Gly Pro Ser Pro Ala Leu Pro Pro Arg			
25 30 35			
ttg aaa gag atg aag atg cag gag tct gtg gca ggt tcc aaa cta gtg			620
Leu Lys Glu Met Lys Met Gln Glu Ser Val Ala Gly Ser Lys Leu Val			
40 45 50			
ctt cgg tgc gag acc agt tct gaa tac tcc tct ctc aag ttc aag tgg			668
Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu Lys Phe Lys Trp			
55 60 65 70			
ttc aag aat ggg agt gaa tta agc cga aag aac aaa cca caa aac atc			716
Phe Lys Asn Gly Ser Glu Leu Ser Arg Lys Asn Lys Pro Gln Asn Ile			
75 80 85			
aag ata cag aaa agg ccg ggg aag tca gaa ctt cgc att agc aaa gcg			764
Lys Ile Gln Lys Arg Pro Gly Lys Ser Glu Leu Arg Ile Ser Lys Ala			

90	95	100	
tca ctg gct gat tct gga gaa tat atg tgc aaa gtg atc agc aaa cta			812
Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Ile Ser Lys Leu			
105	110	115	
gga aat gac agt gcc tct gcc aac atc acc att gtg gag tca aac gag			860
Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser Asn Glu			
120	125	130	
atc acc act ggc atg cca gcc tca act gag aca gcg tat gtg tct tca			908
Ile Thr Thr Gly Met Pro Ala Ser Thr Glu Thr Ala Tyr Val Ser Ser			
135	140	145	150
gag tct ccc att aga ata tca gta tca aca gaa gga aca aat act tct			956
Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu Gly Thr Asn Thr Ser			
155	160	165	
tca tcc aca tcc aca tct aca gct ggg aca agc cat ctt gtc aag tgt			1004
Ser Ser Thr Ser Thr Ser Thr Ala Gly Thr Ser His Leu Val Lys Cys			
170	175	180	
gca gag aag gag aaa act ttc tgt gtg aat gga ggc gag tgc ttc atg			1052
Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe Met			
185	190	195	
gtg aaa gac ctt tca aat ccc tca aga tac ttg tgc aag tgc cca aat			1100
Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro Asn			
200	205	210	
gag ttt act ggt gat cgc tgc caa aac tac gta atg gcc agc ttc tac			1148
Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr			
215	220	225	230
agt acg tcc act ccc ttt ctg tct ctg cct gaa taggcgcatg ctcagtcggt			1201
Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu			
235	240		
gccgctttct tgttgccgca tctccctca gattcaacct agagctagat gcgttttacc			1261
aggtctaaca ttgactgcct ctgcctgtcg catgagaaca ttaacacaag cgattgtatg			1321
acttcctctg tccgtgacta gtgggctctg agctactcgt aggtgcgtaa ggctccagtg			1381
tttctgaaat tgatcttgaa ttactgtgat acgacatgat agtccctctc acccagtgca			1441
atgacaataa aggccttgaa aagtctcact tttattgaga aaataaaaaat cgttccacgg			1501
gacagtcctt cttctttata aaatgaccct atccttgaaa aggaggtgtg ttaagttgta			1561
accagtacac acttgaaatg atggtaagtt cgcttcgggt cagaatgtgt tctttctgac			1621
aaataaacag aataaaaaaa aaaaaaaaaa a			1652

<210> 149
 <211> 1140
 <212> DNA
 <213> Bos taurus

<220>

<221> CDS

<222> (1)...(840)

<223> Xaa in position 2 is unknown.

<400> 149

cat can gtg tgg gcg gcg aaa gcc ggg ggc ttg aag aag gac tcg ctg	48
His Xaa Val Trp Ala Ala Lys Ala Gly Gly Leu Lys Lys Asp Ser Leu	
1 5 10 15	
ctc acc gtg cgc ctg ggc gcc tgg ggc cac ccc gcc ttc ccc tcc tgc	96
Leu Thr Val Arg Leu Gly Ala Trp Gly His Pro Ala Phe Pro Ser Cys	
20 25 30	
ggg cgc ctc aag gag gac agc agg tac atc ttc ttc atg gag ccc gag	144
Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met Glu Pro Glu	
35 40 45	
gcc aac agc agc ggc ggg ccc ggc cgc ctt ccg agc ctc ctt ccc ccc	192
Ala Asn Ser Ser Gly Gly Pro Gly Arg Leu Pro Ser Leu Leu Pro Pro	
50 55 60	
tct cga gac ggg ccg gaa cct caa gaa gga ggt cag ccg ggt gct gtg	240
Ser Arg Asp Gly Pro Glu Pro Gln Glu Gly Gly Gln Pro Gly Ala Val	
65 70 75 80	
caa cgg tgc gcc ttg cct ccc cgc ttg aaa gag atg aag agt cag gag	288
Gln Arg Cys Ala Leu Pro Pro Arg Leu Lys Glu Met Lys Ser Gln Glu	
85 90 95	
tct gtg gca ggt tcc aaa cta gtg ctt cgg tgc gag acc agt tct gaa	336
Ser Val Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu	
100 105 110	
tac tcc tct ctc aag ttc aag tgg ttc aag aat ggg agt gaa tta agc	384
Tyr Ser Ser Leu Lys Phe Lys Trp Phe Lys Asn Gly Ser Glu Leu Ser	
115 120 125	
cga aag aac aaa cca gaa aac atc aag ata cag aaa agg ccg ggg aag	432
Arg Lys Asn Lys Pro Glu Asn Ile Lys Ile Gln Lys Arg Pro Gly Lys	
130 135 140	
tca gaa ctt cgc att agc aaa gcg tca ctg gct gat tct gga gaa tat	480
Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr	
145 150 155 160	
atg tgc aaa gtg atc agc aaa cta gga aat gac agt gcc tct gcc aac	528
Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn	
165 170 175	

atc acc att gtg gag tca aac gcc aca tcc aca tct aca gct ggg aca	576
Ile Thr Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala Gly Thr	
180 185 190	
agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat	624
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
195 200 205	
gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac	672
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
210 215 220	
ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act gag aat	720
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	
225 230 235 240	
gtg ccc atg aaa gtc caa acc caa gaa aag tgc cca aat gag ttt act	768
Val Pro Met Lys Val Gln Thr Gln Glu Lys Cys Pro Asn Glu Phe Thr	
245 250 255	
ggg gat cgc tgc caa aac tac gta atg gcc agc ttc tac agt acg tcc	816
Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser	
260 265 270	
act ccc ttt ctg tct ctg cct gaa tagcgcatct cagtcggtgc cgctttcttg	870
Thr Pro Phe Leu Ser Leu Pro Glu	
275 280	
ttgccgcatac tccctcaga ttccnctag agctagatgc gttttaccag gtctaacatt	930
gactgcctct gctgtcgca tgagaacatt aacacaagcg attgtatgac ttctctgtc	990
cgtagactagt gggctctgag ctactcgtag gtgcgtaagg ctccagtgtt tctgaaattg	1050
atcttgaaatt actgtgatac gacatgatag tccctctcac ccagtgcaat gacaataaag	1110
gccttgaaaa gtcaaaaaaa aaaaaaaaaa	1140

<210> 150
 <211> 1764
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (2) ... (1681)

<400> 150	
g aag tca gaa ctt cgc att agc aaa gcg tca ctg gct gat tct gga gaa	49
Lys Ser Glu Leu Arg Ile Ser Lys Ala Ser Leu Ala Asp Ser Gly Glu	
1 5 10 15	
tat atg tgc aaa gtg atc agc aaa cta gga aat gac agt gcc tct gcc	97
Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala	
20 25 30	

aac atc acc att gtg gag tca aac gcc aca tcc aca tct aca gct ggg	145
Asn Ile Thr Ile Val Glu Ser Asn Ala Thr Ser Thr Ser Thr Ala Gly	
35 40 45	
aca agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg	193
Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val	
50 55 60	
aat gga ggc gac tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga	241
Asn Gly Gly Asp Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg	
65 70 75 80	
tac ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act gag	289
Tyr Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu	
85 90 95	
aat gtg ccc atg aaa gtc caa acc caa gaa aaa gcg gag gag ctc tac	337
Asn Val Pro Met Lys Val Gln Thr Gln Glu Lys Ala Glu Glu Leu Tyr	
100 105 110	
cag aag aga gtg ctc acc att acc ggc att tgc atc gcg ctg ctc gtg	385
Gln Lys Arg Val Leu Thr Ile Thr Gly Ile Cys Ile Ala Leu Leu Val	
115 120 125	
gtt ggc atc atg tgt gtg gtg gtc tac tgc aaa acc aag aaa caa cgg	433
Val Gly Ile Met Cys Val Val Val Tyr Cys Lys Thr Lys Lys Gln Arg	
130 135 140	
aaa aag ctt cat gac cgg ctt cgg cag agc ctt cgg tct gaa aga aac	481
Lys Lys Leu His Asp Arg Leu Arg Gln Ser Leu Arg Ser Glu Arg Asn	
145 150 155 160	
acc atg atg aac gta gcc aac ggg ccc cac cac ccc aat ccg ccc ccc	529
Thr Met Met Asn Val Ala Asn Gly Pro His His Pro Asn Pro Pro Pro	
165 170 175	
gag aac gtg cag ctg gtg aat caa tac gta tct aaa aat gtc atc tct	577
Glu Asn Val Gln Leu Val Asn Gln Tyr Val Ser Lys Asn Val Ile Ser	
180 185 190	
agc gag cat att gtt gag aga gag gcg gag agc tct ttt tcc acc agt	625
Ser Glu His Ile Val Glu Arg Glu Ala Glu Ser Ser Phe Ser Thr Ser	
195 200 205	
cac tac act tcg aca gct cat cat tcc act act gtc act cag act ccc	673
His Tyr Thr Ser Thr Ala His His Ser Thr Thr Val Thr Gln Thr Pro	
210 215 220	
agt cac agc tgg agc aat gga cac act gaa agc atc att tcg gaa agc	721
Ser His Ser Trp Ser Asn Gly His Thr Glu Ser Ile Ile Ser Glu Ser	

225	230	235	240	
cac tct gtc atc gtg atg tca tcc gta gaa aac agt agg cac agc agc				769
His Ser Val Ile Val Met Ser Ser Val Glu Asn Ser Arg His Ser Ser				
	245	250	255	
ccg act ggg ggc ccg aga gga cgt ctc aat ggc ttg gga ggc cct cgt				817
Pro Thr Gly Gly Pro Arg Gly Arg Leu Asn Gly Leu Gly Gly Pro Arg				
	260	265	270	
gaa tgt aac agc ttc ctc agg cat gcc aga gaa acc cct gac tcc tac				865
Glu Cys Asn Ser Phe Leu Arg His Ala Arg Glu Thr Pro Asp Ser Tyr				
	275	280	285	
cga gac tct cct cat agt gaa aga cat aac ctt ata gct gag cta agg				913
Arg Asp Ser Pro His Ser Glu Arg His Asn Leu Ile Ala Glu Leu Arg				
	290	295	300	
aga aac aag gcc cac aga tcc aaa tgc atg cag atc cag ctt tcc gca				961
Arg Asn Lys Ala His Arg Ser Lys Cys Met Gln Ile Gln Leu Ser Ala				
	305	310	315	320
act cat ctt aga gct tct tcc att ccc cat tgg gct tca ttc tct aag				1009
Thr His Leu Arg Ala Ser Ser Ile Pro His Trp Ala Ser Phe Ser Lys				
	325	330	335	
acc cct tgg cct tta gga agg tat gta tca gca atg acc acc ccg gct				1057
Thr Pro Trp Pro Leu Gly Arg Tyr Val Ser Ala Met Thr Thr Pro Ala				
	340	345	350	
cgt atg tca cct gta gat ttc cac acg cca agc tcc ccc aag tca ccc				1105
Arg Met Ser Pro Val Asp Phe His Thr Pro Ser Ser Pro Lys Ser Pro				
	355	360	365	
cct tcg gaa atg tcc ccg ccc gtg tcc agc acg acg gtc tcc atg ccc				1153
Pro Ser Glu Met Ser Pro Pro Val Ser Ser Thr Thr Val Ser Met Pro				
	370	375	380	
tcc atg gcg gtc agt ccc ttc gtg gaa gag gag aga ccc ctg ctc ctt				1201
Ser Met Ala Val Ser Pro Phe Val Glu Glu Glu Arg Pro Leu Leu Leu				
	385	390	395	400
gtg acg cca cca cgg ctg cgg gag aag tat gac cac cac gcc cag caa				1249
Val Thr Pro Pro Arg Leu Arg Glu Lys Tyr Asp His His Ala Gln Gln				
	405	410	415	
ttc aac tcg ttc cac tgc aac ccc gcg cat gag agc aac agc ctg ccc				1297
Phe Asn Ser Phe His Cys Asn Pro Ala His Glu Ser Asn Ser Leu Pro				
	420	425	430	
ccc agc ccc ttg agg ata gtg gag gat gag gaa tat gaa acg acc cag				1345

Pro	Ser	Pro	Leu	Arg	Ile	Val	Glu	Asp	Glu	Glu	Tyr	Glu	Thr	Thr	Gln		
		435					440					445					
gag tac gaa cca gct caa gag ccg gtt aag aaa ctc acc aac agc agc																	1393
Glu	Tyr	Glu	Pro	Ala	Gln	Glu	Pro	Val	Lys	Lys	Leu	Thr	Asn	Ser	Ser		
		450				455					460						
cgg cgg gcc aaa aga acc aag ccc aat ggt cac att gcc cac agg ttg																	1441
Arg	Arg	Ala	Lys	Arg	Thr	Lys	Pro	Asn	Gly	His	Ile	Ala	His	Arg	Leu		
		465				470				475					480		
gaa atg gac aac aac aca ggc gct gac agc agt aac tca gag agc gaa																	1489
Glu	Met	Asp	Asn	Asn	Thr	Gly	Ala	Asp	Ser	Ser	Asn	Ser	Glu	Ser	Glu		
				485					490						495		
aca gag gat gaa aga gta gga gaa gat acg cct ttc ctg gcc ata cag																	1537
Thr	Glu	Asp	Glu	Arg	Val	Gly	Glu	Asp	Thr	Pro	Phe	Leu	Ala	Ile	Gln		
			500					505						510			
aac ccc ctg gca gcc agt ctc gag gcg gcc cct gcc ttc cgc ctg gtc																	1585
Asn	Pro	Leu	Ala	Ala	Ser	Leu	Glu	Ala	Ala	Pro	Ala	Phe	Arg	Leu	Val		
		515					520					525					
gac agc agg act aac cca aca ggc ggc ttc tct ccg cag gaa gaa ttg																	1633
Asp	Ser	Arg	Thr	Asn	Pro	Thr	Gly	Gly	Phe	Ser	Pro	Gln	Glu	Glu	Leu		
		530				535					540						
cag gcc agg ctc tcc ggt gta atc gct aac caa gac cct atc gct gtc																	1681
Gln	Ala	Arg	Leu	Ser	Gly	Val	Ile	Ala	Asn	Gln	Asp	Pro	Ile	Ala	Val		
		545				550				555				560			
taaaaccgaa atacacccat agattcacct gtaaaacttt attttatata ataaagtatt																	1741
ccaccttaaa ttaaacaaaa aaa																	1764

<210> 151
 <211> 50
 <212> PRT
 <213> Bos taurus

<400> 151																	
Lys	Cys	Ala	Glu	Lys	Glu	Lys	Thr	Phe	Cys	Val	Asn	Gly	Gly	Glu	Cys		
1				5					10					15			
Phe	Met	Val	Lys	Asp	Leu	Ser	Asn	Pro	Ser	Arg	Tyr	Leu	Cys	Lys	Cys		
			20					25					30				
Pro	Asn	Glu	Phe	Thr	Gly	Asp	Arg	Cys	Gln	Asn	Tyr	Val	Met	Ala	Ser		
		35					40					45					
Phe	Tyr																
	50																

<210> 152
 <211> 50

<212> PRT

<213> Bos taurus

<400> 152

Lys	Cys	Ala	Glu	Lys	Glu	Lys	Thr	Phe	Cys	Val	Asn	Gly	Gly	Glu	Cys
1				5					10					15	
Phe	Met	Val	Lys	Asp	Leu	Ser	Asn	Pro	Ser	Arg	Tyr	Leu	Cys	Lys	Cys
			20					25					30		
Gln	Pro	Gly	Phe	Thr	Gly	Ala	Arg	Cys	Thr	Glu	Asn	Val	Pro	Met	Lys
		35					40					45			
Val	Gln														
	50														

<210> 153

<211> 46

<212> PRT

<213> Homo sapiens

<400> 153

Glu	Cys	Leu	Arg	Lys	Tyr	Lys	Asp	Phe	Cys	Ile	His	Gly	Glu	Cys	Lys
1				5					10					15	
Tyr	Val	Lys	Glu	Leu	Arg	Ala	Pro	Ser	Cys	Lys	Cys	Gln	Gln	Glu	Tyr
			20					25					30		
Phe	Gly	Glu	Arg	Cys	Gly	Glu	Lys	Ser	Asn	Lys	Thr	His	Ser		
		35					40					45			

<210> 154

<211> 198

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(198)

<400> 154

agc	cat	ctt	gtc	aag	tgt	gca	gag	aag	gag	aaa	act	ttc	tgt	gtg	aat	48
Ser	His	Leu	Val	Lys	Cys	Ala	Glu	Lys	Glu	Lys	Thr	Phe	Cys	Val	Asn	
1				5					10					15		
gga	ggc	gag	tgc	ttc	atg	gtg	aaa	gac	ctt	tca	aat	ccc	tca	aga	tac	96
Gly	Gly	Glu	Cys	Phe	Met	Val	Lys	Asp	Leu	Ser	Asn	Pro	Ser	Arg	Tyr	
			20					25					30			
ttg	tgc	aag	tgc	cca	aat	gag	ttt	act	ggg	gat	cgc	tgc	caa	aac	tac	144
Leu	Cys	Lys	Cys	Pro	Asn	Glu	Phe	Thr	Gly	Asp	Arg	Cys	Gln	Asn	Tyr	
			35				40					45				
gta	atg	gcc	agc	ttc	tac	agt	acg	tcc	act	ccc	ttt	ctg	tct	ctg	cct	192
Val	Met	Ala	Ser	Phe	Tyr	Ser	Thr	Ser	Thr	Pro	Phe	Leu	Ser	Leu	Pro	
	50						55					60				

gaa tag 198
 Glu *
 65

<210> 155
 <211> 192
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (1)...(189)

<400> 155
 agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat 48
 Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn
 1 5 10 15

gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac 96
 Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr
 20 25 30

ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act gag aat 144
 Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn
 35 40 45

gtg ccc atg aaa gtc caa acc caa gaa aaa gcg gag gag ctc tac 189
 Val Pro Met Lys Val Gln Thr Gln Glu Lys Ala Glu Glu Leu Tyr
 50 55 60

taa 192

<210> 156
 <211> 183
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(180)

<400> 156
 agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat 48
 Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn
 1 5 10 15

gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac 96
 Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr
 20 25 30

ttg tgc aag tgc cca aat gag ttt act ggt gat cgc tgc caa aac tac	144
Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	
35 40 45	

gta atg gcc agc ttc tac aaa gcg gag gag ctc tac taa	183
Val Met Ala Ser Phe Tyr Lys Ala Glu Glu Leu Tyr	
50 55 60	

<210> 157
 <211> 210
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(207)

<400> 157	
agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
1 5 10 15	

gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
20 25/ 30	

ttg tgc aag tgc cca aat gag ttt act ggt gat cgc tgc caa aac tac	144
Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr	
35 40 45	

gta atg gcc agc ttc tac aag cat ctt ggg att gaa ttt atg gag aaa	192
Val Met Ala Ser Phe Tyr Lys His Leu Gly Ile Glu Phe Met Glu Lys	
50 55 60	

gcg gag gag ctc tac taa	210
Ala Glu Glu Leu Tyr	
65	

<210> 158
 <211> 267
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (1)...(264)

<400> 158

agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
1 5 10 15	
gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
20 25 30	
ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act gag aat	144
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	
35 40 45	
gtg ccc atg aaa gtc caa acc caa gaa aag tgc cca aat gag ttt act	192
Val Pro Met Lys Val Gln Thr Gln Glu Lys Cys Pro Asn Glu Phe Thr	
50 55 60	
ggt gat cgc tgc caa aac tac gta atg gcc agc ttc tac agt acg tcc	240
Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser	
65 70 75 80	
act ccc ttt ctg tct ctg cct gaa tag	267
Thr Pro Phe Leu Ser Leu Pro Glu	
85	

<210> 159
 <211> 252
 <212> DNA
 <213> Bos taurus

 <220>
 <221> CDS
 <222> (1)...(249)

<400> 159	
agc cat ctt gtc aag tgt gca gag aag gag aaa act ttc tgt gtg aat	48
Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn	
1 5 10 15	
gga ggc gag tgc ttc atg gtg aaa gac ctt tca aat ccc tca aga tac	96
Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr	
20 25 30	
ttg tgc aag tgc caa cct gga ttc act gga gcg aga tgt act gag aat	144
Leu Cys Lys Cys Gln Pro Gly Phe Thr Gly Ala Arg Cys Thr Glu Asn	
35 40 45	
gtg ccc atg aaa gtc caa acc caa gaa aag tgc cca aat gag ttt act	192
Val Pro Met Lys Val Gln Thr Gln Glu Lys Cys Pro Asn Glu Phe Thr	
50 55 60	

ggt gat cgc tgc caa aac tac gta atg gcc agc ttc tac aaa gcg gag 240
 Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Lys Ala Glu
 65 70 75 80

gag ctc tac taa 252
 Glu Leu Tyr

<210> 160
 <211> 128
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (3)...(125)

<400> 160
 cc aca tcc aca tct aca gct ggg aca agc cat ctt gtc aag tgt gca 47
 Thr Ser Thr Ser Thr Ala Gly Thr Ser His Leu Val Lys Cys Ala
 1 5 10 15

gag aag gag aaa act ttc tgt gtg aat gga ggc gag tgc ttc atg gtg 95
 Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe Met Val
 20 25 30

aaa gac ctt tca aat ccc tca aga tac ttg tgc 128
 Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu
 35 40

<210> 161
 <211> 142
 <212> DNA
 <213> Bos taurus

<220>
 <221> CDS
 <222> (2)...(142)

<221> variation
 <222> (142)...(142)
 <223> N in position 142 varies.

<221> variation
 <222> (47)...(47)
 <223> Xaa in position 47 is Arg.

<400> 161
 a cat aac ctt ata gct gag cta agg aga aac aag gcc cac aga tcc aaa 49

His Asn Leu Ile Ala Glu Leu Arg Arg Asn Lys Ala His Arg Ser Lys
 1 5 10 15
 tgc atg cag atc cag ctt tcc gca act cat ctt aga gct tct tcc att 97
 Cys Met Gln Ile Gln Leu Ser Ala Thr His Leu Arg Ala Ser Ser Ile
 20 25 30
 ccc cat tgg gct tca ttc tct aag acc cct tgg cct tta gga agn 142
 Pro His Trp Ala Ser Phe Ser Lys Thr Pro Trp Pro Leu Gly Xaa
 35 40 45

 <210> 162
 <211> 24
 <212> PRT
 <213> Homo sapiens

 <220>
 <221> UNSURE
 <222> (15)...(22)
 <223> Xaa in 15 and 22 is unknown.

 <400> 162
 Ala Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Xaa Phe
 1 5 10 15
 Met Val Lys Asp Leu Xaa Asn Pro
 20

 <210> 163
 <211> 745
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> CDS
 <222> (1)...(744)

 <400> 163
 atg aga tgg cga cgc gcc ccg cgc cgc tcc ggg cgt ccc ggc ccc cgg 48
 Met Arg Trp Arg Arg Ala Pro Arg Arg Ser Gly Arg Pro Gly Pro Arg
 1 5 10 15
 gcc cag cgc ccc ggc tcc gcc gcc cgc tcg tcg ccg ccg ctg ccg ctg 96
 Ala Gln Arg Pro Gly Ser Ala Ala Arg Ser Ser Pro Pro Leu Pro Leu
 20 25 30
 ctg cca cta ctg ctg ctg ctg ggg acc gcg gcc ctg gcg ccg ggg gcg 144
 Leu Pro Leu Leu Leu Leu Leu Gly Thr Ala Ala Leu Ala Pro Gly Ala
 35 40 45
 gcg gcc ggc aac gag gcg gct ccc gcg ggg gcc tcg gtg tgc tac tcg 192

Ala Ala Gly Asn Glu Ala Ala Pro Ala Gly Ala Ser Val Cys Tyr Ser	
50 55 60	
tcc ccg ccc agc gtg gga tcg gtg cag gag cta gct cag cgc gcc gcg	240
Ser Pro Pro Ser Val Gly Ser Val Gln Glu Leu Ala Gln Arg Ala Ala	
65 70 75 80	
gtg gtg atc gag gga aag gtg cac ccg cag cgg cgg cag cag ggg gca	288
Val Val Ile Glu Gly Lys Val His Pro Gln Arg Arg Gln Gln Gly Ala	
85 90 95	
ctc gac agg aag gcg gcg gcg gcg gcg ggc gag gca ggg gcg tgg ggc	336
Leu Asp Arg Lys Ala Ala Ala Ala Ala Gly Glu Ala Gly Ala Trp Gly	
100 105 110	
ggc gat cgc gag ccg cca gcc gcg ggc cca cgg gcg ctg ggg ccg ccc	384
Gly Asp Arg Glu Pro Pro Ala Ala Gly Pro Arg Ala Leu Gly Pro Pro	
115 120 125	
gcc gag gag ccg ctg ctc gcc gcc aac ggg acc gtg ccc tct tgg ccc	432
Ala Glu Glu Pro Leu Leu Ala Ala Asn Gly Thr Val Pro Ser Trp Pro	
130 135 140	
acc gcc ccg gtg ccc agc gcc ggc gag ccc ggg gag gag gcg ccc tat	480
Thr Ala Pro Val Pro Ser Ala Gly Glu Pro Gly Glu Glu Ala Pro Tyr	
145 150 155 160	
ctg gtg aag gtg cac cag gtg tgg gcg gtg aaa gcc ggg ggc ttg aag	528
Leu Val Lys Val His Gln Val Trp Ala Val Lys Ala Gly Gly Leu Lys	
165 170 175	
aag gac tcg ctg ctc acc gtg cgc ctg ggg acc tgg ggc cac ccc gcc	576
Lys Asp Ser Leu Leu Thr Val Arg Leu Gly Thr Trp Gly His Pro Ala	
180 185 190	
ttc ccc tcc tgc ggg agg ctc aag gag gac agc agg tac atc ttc ttc	624
Phe Pro Ser Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe	
195 200 205	
atg gag ccc gac gcc aac agc acc agc cgc gcg ccg gcc gcc ttc cga	672
Met Glu Pro Asp Ala Asn Ser Thr Ser Arg Ala Pro Ala Ala Phe Arg	
210 215 220	
gcc tct ttc ccc cct ctg gag acg ggc cgg aac ctc aag aag gag gtc	720
Ala Ser Phe Pro Pro Leu Glu Thr Gly Arg Asn Leu Lys Lys Glu Val	
225 230 235 240	
agc cgg gtg ctg tgc aag cgg tgc g	745
Ser Arg Val Leu Cys Lys Arg Cys	
245	

```
<220>  
<221> UNSURE  
<222> (1)...(1)  
<223> Xaa in 1 is unknown.
```

```
<210> 165
<211> 5
<212> PRT
<213> Homo sapiens
```

```
<220>  
<221> UNSURE  
<222> (1) ... (1)  
<223> Xaa in 1 is unknown.
```

```
<210> 166
<211> 11
<212> PRT
<213> Homo sapiens
```

```
<220>
<221> UNSURE
<222> (1)...(3)
<223> Xaa in 1, 2, and 3 is unknown.
```

```
<210> 167
<211> 60
<212> DNA
<213> Artificial Sequence
```

```
<220>
<223> Probe/primer derived from Rattus rattus
<221> unsure
```

<222> (25)...(31)

<223> N in 25 and 31 is unknown.

<400> 167

ataggggaagg gcgggggaag ggtcnccctc ngcagggccg ggcttgccctc tggagcctct

60

<210> 168

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Probe/primer derived from Rattus rattus

<221> unsure

<222> (16)...(16)

<223> N in 16 is unknown.

<400> 168

tttacacata tattcncc

18

<210> 169

<211> 21

<212> PRT

<213> Bos taurus

<400> 169

Glu Thr Gln Pro Asp Pro Gly Gln Ile Leu Lys Lys Val Pro Met Val
1 5 10 15
Ile Gly Ala Tyr Thr
20

<210> 170

<211> 422

<212> PRT

<213> Homo sapiens

<400> 170

Met Arg Trp Arg Arg Ala Pro Arg Arg Ser Gly Arg Pro Gly Pro Arg
1 5 10 15
Ala Gln Arg Pro Gly Ser Ala Ala Arg Ser Ser Pro Pro Leu Pro Leu
20 25 30
Leu Pro Leu Leu Leu Leu Gly Thr Ala Ala Leu Ala Pro Gly Ala
35 40 45
Ala Ala Gly Asn Glu Ala Ala Pro Ala Gly Ala Ser Val Cys Tyr Ser
50 55 60
Ser Pro Pro Ser Val Gly Ser Val Gln Glu Leu Ala Gln Arg Ala Ala
65 70 75 80
Val Val Ile Glu Gly Lys Val His Pro Gln Arg Arg Gln Gln Gly Ala
85 90 95
Leu Asp Arg Lys Ala Ala Ala Ala Gly Glu Ala Gly Ala Trp Gly

			100					105					110				
Gly	Asp	Arg	Glu	Pro	Pro	Ala	Ala	Gly	Pro	Arg	Ala	Leu	Gly	Pro	Pro		
			115					120					125				
Ala	Glu	Glu	Pro	Leu	Leu	Ala	Ala	Asn	Gly	Thr	Val	Pro	Ser	Trp	Pro		
			130					135					140				
Thr	Ala	Pro	Val	Pro	Ser	Ala	Gly	Glu	Pro	Gly	Glu	Glu	Ala	Pro	Tyr		
145					150					155					160		
Leu	Val	Lys	Val	His	Gln	Val	Trp	Ala	Val	Lys	Ala	Gly	Gly	Leu	Lys		
				165						170				175			
Lys	Asp	Ser	Leu	Leu	Thr	Val	Arg	Leu	Gly	Thr	Trp	Gly	His	Pro	Ala		
			180					185					190				
Phe	Pro	Ser	Cys	Gly	Arg	Leu	Lys	Glu	Asp	Ser	Arg	Tyr	Ile	Phe	Phe		
		195					200					205					
Met	Glu	Pro	Asp	Ala	Asn	Ser	Thr	Ser	Arg	Ala	Pro	Ala	Ala	Phe	Arg		
		210				215					220						
Ala	Ser	Phe	Pro	Pro	Leu	Glu	Thr	Gly	Arg	Asn	Leu	Lys	Lys	Glu	Val		
225					230					235					240		
Ser	Arg	Val	Leu	Cys	Lys	Arg	Cys	Ala	Leu	Pro	Pro	Gln	Leu	Lys	Glu		
				245					250				255				
Met	Lys	Ser	Gln	Glu	Ser	Ala	Ala	Gly	Ser	Lys	Leu	Val	Leu	Arg	Cys		
			260					265				270					
Glu	Thr	Ser	Ser	Glu	Tyr	Ser	Ser	Leu	Arg	Phe	Lys	Trp	Phe	Lys	Asn		
		275					280					285					
Gly	Asn	Glu	Leu	Asn	Arg	Lys	Asn	Lys	Pro	Gln	Asn	Ile	Lys	Ile	Gln		
	290					295					300						
Lys	Lys	Pro	Gly	Lys	Ser	Glu	Leu	Arg	Ile	Asn	Lys	Ala	Ser	Leu	Ala		
305					310					315					320		
Asp	Ser	Gly	Glu	Tyr	Met	Cys	Lys	Val	Ile	Ser	Lys	Leu	Gly	Asn	Asp		
				325					330				335				
Ser	Ala	Ser	Ala	Asn	Ile	Thr	Ile	Val	Glu	Ser	Asn	Ala	Thr	Ser	Thr		
			340					345					350				
Ser	Thr	Thr	Gly	Thr	Ser	His	Leu	Val	Lys	Cys	Ala	Glu	Lys	Glu	Lys		
		355					360					365					
Thr	Phe	Cys	Val	Asn	Gly	Gly	Glu	Cys	Phe	Met	Val	Lys	Asp	Leu	Ser		
	370					375					380						
Asn	Pro	Ser	Arg	Tyr	Leu	Cys	Lys	Cys	Pro	Asn	Glu	Phe	Thr	Gly	Asp		
385					390					395					400		
Arg	Cys	Gln	Asn	Tyr	Val	Met	Ala	Ser	Phe	Tyr	Ser	Thr	Ser	Thr	Pro		
				405					410				415				
Phe	Leu	Ser	Leu	Pro	Glu												
			420														

<210> 171
 <211> 69
 <212> PRT
 <213> Homo sapiens

<400> 171
 Met Ser Glu Arg Lys Glu Gly Arg Gly Lys Gly Lys Gly Lys Lys Lys
 1 5 10 15
 Glu Arg Gly Ser Gly Lys Lys Pro Glu Ser Ala Ala Gly Ser Gln Ser

20 25 30
 Pro Arg Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu Gly Ala Tyr
 35 40 45
 Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu Gly Ala
 50 55 60
 Asn Thr Ser Ser Ser
 65

<210> 172
 <211> 19
 <212> PRT
 <213> Bos taurus

<400> 172
 Arg Lys Gly Asp Val Pro Gly Pro Arg Val Lys Ser Ser Arg Ser Thr
 1 5 10 15
 Thr Thr Ala

<210> 173
 <211> 231
 <212> DNA
 <213> Homo sapiens

<400> 173
 cgcgagcgcc tcagcgcggc cgctcgctct cccctcgag ggacaaactt ttcccaaacc 60
 cgatccgagc ccttggacca aactcgctg cgccgagagc cgtccgcta gagcgctccg 120
 tctccggcga gatgtccgag cgcaaagaag gcagaggcaa aggggaaggc aagaagaagg 180
 agcgaggctc cggcaagaag ccggagtccg cggcgggcag ccagagccca g 231

<210> 174
 <211> 178
 <212> DNA
 <213> Homo sapiens

<400> 174
 ccttgccctcc ccgattgaaa gagatgaaaa gccaggaatc ggctgcaggt tccaaactag 60
 tccttcggtg tgaaaccagt tctgaatact cctctctcag attcaagtgg ttcaagaatg 120
 ggaatgaatt gaatcgaaaa aacaaaccac aaaatatcaa gatacaaaaa aagccagg 178

<210> 175
 <211> 122
 <212> DNA
 <213> Homo sapiens

<400> 175
 gaagtcagaa cttcgcatta acaaagcatc actggctgat tctggagagt atatgtgcaa 60
 agtgatcagc aaattaggaa atgacagtgc ctctgccaat atcaccatcg tggaatcaaa 120
 cg 122

<210> 176

<211> 102
 <212> DNA
 <213> Homo sapiens

<400> 176
 agatcatcac tggatatgcca gctcaactg aaggagcata tgtgtcttca gagtctccca 60
 ttagaatatc agtatccaca gaaggagcaa atacttcttc at 102

<210> 177
 <211> 128
 <212> DNA
 <213> Homo sapiens

<400> 177
 ctacatctac atccaccact gggacaagcc atcttgtaaa atgtgctggag aaggagaaaa 60
 ctttctgtgt gaatggaggg gagtgttca tggtgaaaga cctttcaaac ccctcgagat 120
 acttgtgc 128

<210> 178
 <211> 69
 <212> DNA
 <213> Homo sapiens

<400> 178
 aagtgccaac ctggattcac tggagcaaga tgtactgaga atgtgcccac gaaagtccaa 60
 aaccaagaa 69

<210> 179
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Probe derived from Bos taurus

<400> 179
 tcgggctcca tgaagaagat gta 23

<210> 180
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Probe derived from Bos taurus

<400> 180
 tccatgaaga agatgtacct gct 23

<210> 181
 <211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Probe derived from Bos taurus

 <400> 181
 atgtacctgc tgtcctcctt ga 22

 <210> 182
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Probe derived from Bos taurus

 <400> 182
 ttgaagaagg actcgctgct ca 22

 <210> 183
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Probe derived from Bos taurus

 <400> 183
 aaagccgggg gcttgaagaa 20

 <210> 184
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Probe derived from Bos taurus

 <400> 184
 atgargtgtg ggcggcgaaa 20

 <210> 185
 <211> 15
 <212> PRT
 <213> Bos taurus

 <400> 185
 Glu Gly Lys Val His Pro Gln Arg Arg Gly Ala Leu Asp Arg Lys
 1 5 10 15

<210> 186
 <211> 17
 <212> PRT
 <213> Bos taurus

<400> 186
 Pro Ser Cys Gly Arg Leu Lys Glu Asp Ser Arg Tyr Ile Phe Phe Met
 1 5 10 15
 Glu

<210> 187
 <211> 16
 <212> PRT
 <213> Bos taurus

<400> 187
 Glu Leu Asn Arg Lys Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys
 1 5 10 15

<210> 188
 <211> 62
 <212> PRT
 <213> Homo sapiens

<400> 188
 Thr Ser Thr Ser Thr Thr Gly Thr Ser His Leu Val Lys Cys Ala Glu
 1 5 10 15
 Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe Met Val Lys
 20 25 30
 Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe
 35 40 45
 Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr
 50 55 60

<210> 189
 <211> 73
 <212> PRT
 <213> Homo sapiens

<400> 189
 Thr Ser Thr Ser Thr Thr Gly Thr Ser His Leu Val Lys Cys Ala Glu
 1 5 10 15
 Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe Met Val Lys
 20 25 30
 Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe
 35 40 45
 Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr
 50 55 60
 Ser Thr Pro Phe Leu Ser Leu Pro Glu
 65 70